

furthest from the sun (aphelion), the distance is about 90 millions of miles, and its smallest distance (perihelion) is about 89,864,480 miles. The varying amount of ellipticity is owing to the ever-changing positions of the planets in our solar system within and without the orbit of rotation of the earth, and we can imagine a state of combination of the planets, the effect of the attraction of which must be to lengthen the ellipse in the extremest possible degree, so that the earth in aphelion would be $98\frac{1}{2}$ millions of miles distant from the sun. This is not a mere guess, for it has been approximately calculated by Leverrier and other astronomers. The eccentricity of the earth's orbit is at present decreasing, and it will reach its minimum in about 24,000 years.

In connection with degrees of eccentricity, Dr. Croll argues that the distribution of ocean-currents is due to the system of winds, and in the modern world the existing system of winds is due to those astronomical causes that, by help of eccentricity have produced a minor glacial epoch in part of the southern hemisphere at the present day, and a remarkably mild one over Western Europe and great part of the north. This coincidence of winds and great ocean currents is shown by Dr. Croll in a map, the most familiar of which to us, being the westerly and south-westerly winds and currents of the Gulf Stream, the warm winds from which so largely raise the average temperature of the British Islands and the whole of the western part of Europe. There being nothing equivalent to this current running south towards the great Antarctic Continent of Victoria Land, this circumstance, taken in connection with the fact that the southern winter occurs in aphelion, has produced in that region a minor glacial epoch, so that in south latitudes, between about 64° and 78° , the